



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/604,113	06/26/2000	Leland Szewerenko	TI-30126	3785

7590

02/13/2004

ATTEN: ROBERT L. TROIKE
TEXAS INSTRUMENTS INCORPORATED
P.O. BOX 655474- MS 3999
DALLAS, TX 75265

EXAMINER

VU, TUAN A

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/604,113

Applicant(s)

SZEWERENKO ET AL.

Examiner

Tuan A Vu

Art Unit

2124

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 6.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2124

1. This action is responsive to the application filed December 17, 2000.

Claims 1-2, 4, 7-8 have been amended; claims 1-9 have been submitted for examination.

Claim Objections

2. Claims 2-4 is objected to for informalities as follows.

Claims 2-3 are objected to because of a missing term after 'the link' and before 'without changing the compiler' (line 5, 3, respectively). Examiner will treat this missing element as being a – [link] time object code—to be inserted before 'without'.

Claim 4 is objected to because it appears to be a missing verb phrase after "then" (line 8 of claim) before 'near call C target T'. The whole phrase is to be modified, for example as following: -- then call C performs a near call to target T—so to make more readable. Examiner has treated the claim in the light of such suggestion, which is based on the specifications, pg. 27, section 4.

Claim 8 recites 'a single-trampoline' (line 7). There appears to be a redundant '-' in the element.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. Claim 3 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim recites a method the elements of which amount to only a step of 'providing'. Even though this method step is further elaborated in more specific object elements being generated by a link time assembler, the mere fact of 'providing' does not by itself contribute a concrete action being taken as to yield a concrete, tangible, and useful result. Absent a specific description as to what action is being taken, no matter what result is being

Art Unit: 2124

described (e.g. as in the art of compiling or linking), such result cannot be achieved. In other words, although the useful art is ^{disclosed} ~~specified~~ and that some results are ^{disclosed} ~~specified~~, the origin of all which is the act of providing, and the act of providing as recited does not describe a concrete action to make the method step an inventive step leading to a concrete, tangible and useful result.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the element 'problems relating to out of range limitations in transfer control' (line 1). This element 'problems relating to out of range limitations' needs further clarification as to what type of problems in regard to the so-called 'out-of-range limitations' and as how 'out of range' is specified. Further, the element recited as 'the compiler' (line 4) has lack of antecedent basis. Further, the claim recites 'the original target address' (line 8), which also lacks sufficient antecedent basis

Claim 2 also recites the 'out of range' and 'the compiler' problems as mentioned above. Further, claim 2 recites 'to the link' (line 5) and 'the original target address' (line 8), all of which has insufficient antecedent basis.

Claim 3 recites the limitation 'comprising the step of providing link time modification of object code...'. This action step of 'providing' is not describing a sufficiently specific action step as to enable one skill in the art to interpret as to what action is being taken to implement the

Art Unit: 2124

recited method. The Examiner will be using the broadest interpretation to proceed on examining the merits of the method as claimed. Further, claim 3 has the same lack of antecedent basis issue in 'the compiler' (line 2) and 'to the link' (line 3) as claim 2.

Claim 4 is indefinite for reciting a unclear element 'then near call C target T' (line 8) as mentioned in the above objection, i.e. it appears to be a missing verb phrase in the element recited as a whole.

Claim 5 also recites the 'out of range' and 'the compiler' elements as mentioned above. Further, the element recited as 'is too distant' (line 3) requires further clarification as to how 'too distant' is being defined. The claim also recites 'the target' (line 3), which lacks sufficient antecedent basis.

Claim 7 also recites the 'out of range' and 'far too distant' (line 1, 3) elements, all of which require further specification. Also recited is 'the target' (line 2) as mentioned above; and the element 'the new call' and 'the near call' (line 4, line 6), which also lacks sufficient antecedent basis.

Claim 8 also recites the 'out of range', 'too far distant', 'the target', 'the new call', 'the near call' and 'the original target' (line 2, 3, 5, 6, 11), all of which lacks further specification as to render the claim more definite for interpretation.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2124

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gheith, USPN: 5,797,014 (hereinafter Gheith), in view of Long et al., USPN: 5,835,958 (hereinafter Long).

As per claim 3, Gheith discloses making far calls comprising providing link time (e.g. col. 4, lines 40-49) modification of object code generated by the compiler by the addition of a custom generated object code to the link (re claim 1; *foo-glue* -- col. 5, line 63 to col. 6, line 10). But Gheith does not specifically point out that such modification to the object code at link time is made without changing the compiler generated instructions; but in view of the teachings that the code size is not changed and that only a pointer is used (e.g. col. 6, line 11-27), this limitation is strongly implied. Even in case Gheith does not explicitly specify such limitation, the motivation as to keep the generated compiled code unchanged at link time would have been obvious. The use of patching code at link time to implement just in time compiler optimization was a well-known concept at the time the invention was made. Further, code reference and branch instructions being resolved at compiled time cannot being addressed further at link time and additional glue code as suggested by Gheith can be added to provide such link time resolution. In the same line of code glueing without affecting the original source code, Long, in a method to set up long jump calls and return therefrom to non-contiguous calls in a run-time memory, discloses the use of trampoline code to impart locking of memory sections as to avert memory spilling without affecting the original code (col. 7, line 47 to col. 8, line 36; Fig. 4). It would have been obvious for one of ordinary skill in the art at the time the invention was made to implement a trampoline scheme as taught by Long, to enhance the modification of object code at link time by Gheith, the separately evoked trampoline would alleviate additional re-allocation

Art Unit: 2124

prior to run-time memory by presetting all the context switching parameters in the epilog or prologue functions in a same function; and thus without having to alter the originally compiled object code.

Response to Arguments

8. Applicant's arguments with respect to claims 1-2, 4-9 have been considered but are moot in view of the new ground(s) of rejection.

9. The arguments about claim 3 (Appl. Rmrks, pg. 9) in that there is no teaching about making far calls are not persuasive. Both teachings used by the art of references, Gheith or Long, disclose making calls that are out of range of certain sections of memory, because if they were within limitations of those sections there would be no need to provide glue code (Gheith) or trampoline code (Long) . These code additions redirecting execution control have been implemented each in its own merit; and the rejection has pointed why it would have been either implicit disclosure or obvious by virtue of combination in order to achieve modification without altering the pre-compiled code.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:

Art Unit: 2124

(703) 872-9306 (for formal communications intended for entry)
or: (703) 746-8734 (for informal or draft communications, please consult Examiner
before using this number)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington. VA. , 22202. 4th Floor(Receptionist).

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kakali Chaki

VAT
February 6, 2004

**KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**